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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,822	07/28/2003	Gota Asano	2003_0904A	4365

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EXAMINER
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TALBOT, BRIAN K

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

9/8

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/627,822	ASANO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Brian K. Talbot	1762	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-21 is/are rejected.
- 7) ☒ Claim(s) 2-5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/28/03</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 1762

1. Claims 1-21 remain in the application.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, the step of “removing urethane resin” is confusing as would this not destroy the “urethane sponge” that was just formed. Is the firing to remove organic substances in the urethane resin and not the resin itself? Clarification is requested.

With respect to claims 2 and 3, the phrase “said step of coating” lacks antecedent basis.

With respect to claims 4,5,8 and 9, the phrase “said porous metal plate” lacks antecedent basis.

With respect to claim 10,

the step of “thinning said urethane sponge” is vague and indefinite. It is unclear how and when in the process this step is achieved.

the step of peeling” is unclear. How is this performed?

With respect to claim 11, the step of thinning comprising grinding is confusing as to when this step is performed. Before or after the “peeling” step?

Art Unit: 1762

With respect to claim 16, the “thinning” step is unclear as to when this step is performed.

With respect to claims 6,7,12-15 and 17-21, the claims are rejected as being dependent upon a rejected base claim.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1762

Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Matsumoto et al. (4,251,603).

Matsumoto et al. (4,251,603) teaches a battery electrode whereby plating a resin sponge with nickel and then filling the sponge with nickel hydroxide (col. 2, lines 55-65). Resin is removed by annealing in a hydrogen atmosphere. The porous metal sheet in the pressurized through rollers and then filled with nickel hydroxide (col. 3, lines 1-30). The resin sponge is urethane (col. 7, line 4-40).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (4,251,603).

Matsumoto et al. (4,251,603) fails to teach a pore-promoting agent as claimed as well as the claimed volume ratio.

While the Examiner acknowledges this fact, the reference does teach a pore-promoting agent being utilized in the manufacture of the porous plated sponge (col. 2, lines 1-5) and a porosity of 95% and density of 500-520 mAh/cm<sup>3</sup>. It is the Examiner's position that the particular

Art Unit: 1762

pore-promoting agent and final density are result effective variables. Since the prior art recognizes the importance of controlling these variables, it is the Examiner's position that one skilled in the art would have had a reason to be optimized these variable through routine experimentation to obtain the desired end product.

Claims 8,14,18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (4,251,603) in combination with Sugikawa et al. (6,485,865).

Matsumoto et al. (4,251,603) teaches a battery electrode whereby plating a resin sponge with nickel and then filling the sponge with nickel hydroxide (col. 2, lines 55-65). Resin is removed by annealing in a hydrogen atmosphere. The porous metal sheet in the pressurized through rollers and then filled with nickel hydroxide (col. 3, lines 1-30). The resin sponge is urethane (col. 7, line 4-40).

Matsumoto et al. (4,251,603) fails to teach the thickness of the metal coated sponge being 0.2-2.0 mm.

Sugikawa et al. (6,485,865) teaches a porous metal sheet for battery electrode whereby a urethane porous layer is plated with nickel and filed with nickel hydroxide and then heated to burn off the urethane. The thickness of the porous metal sheet is 0.5 mm – 3.0 mm (co. 1, line 20 – col. 4, line 5).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Matsumoto et al. (4,251,603) process by forming the porous metal sheet with the claimed thickness as evidenced by Sugikawa et al. (6,485,865) with the expectation of achieving similar results.

Art Unit: 1762

Claims 10-13,15-17,20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (4,251,603) in combination with Sugikawa et al. (6,485,865) further in combination with JP 03-226,969.

Matsumoto et al. (4,251,603) in combination with Sugikawa et al. (6,485,865) fail to teach a peeling step to reduce the voids.

JP 03-226,969 teaches a porous base of a battery electrode formed by strip peeling a portion from a block of foamed material in order to reduce the size of the pores to enable more active material to be impregnated therein (abstract).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Matsumoto et al. (4,251,603) in combination with Sugikawa et al. (6,485,865) process by incorporating a peeling step to reduce pore size and improve loading of the porous substrate as evidenced by JP 03-226,969.

With respect to claim 20 that recites the rollers are heated. It is the Examiner's position that heated rollers are conventional in the coating art and hence would have been within the skill of one practicing in the art to have incorporated them with their expected advantages because heated roller are know to promote drying prior to further heating or to eliminate a subsequent step altogether.

*Allowable Subject Matter*

6. Claims 2-5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or fairly suggest applying a coating of polyethylene terephthalate to the urethane sponge prior to plating and firing to reduce the void rate.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 1762

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Handwritten signature of Brian K Talbot and the date 11/9/05.

Brian K Talbot  
Primary Examiner  
Art Unit 1762

BKT